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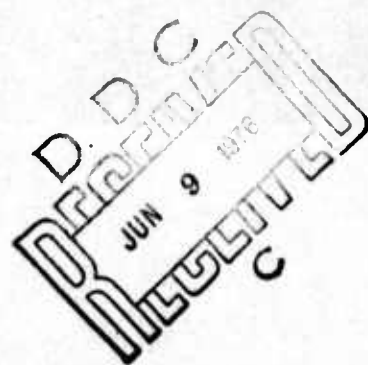
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HUMAN ADAPTATION

Coping with Life Crises

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Coping with the Stress of Isolation

EDNA J. HUNTER

Social isolation produces stress, and although persistence of effects in short experimental isolations may last only a matter of hours or days, it has been suggested that the psychological disabilities resulting from prolonged extreme stress may be permanent. Numerous studies over the past thirty years have presented evidence which supports the hypothesis that there are long-term effects resulting from the stresses of wartime captivity.^{1-6,11,12,15,16} In a recent long-term follow-up of World War II and Korean prisoners of war, Beebe¹ pointed out that the multidimensional character of the stresses of captivity "severely limits inferences about the etiologic role of specific components; e.g., malnutrition, social isolation, sensory deprivation, physical punishment, compulsory education, and the like."

The present study concerned itself primarily with one specific component, *social isolation*. Suedfeld¹⁷ has pointed out that the amount of research on the effects of social isolation *per se* is very small, and that most studies of "social isolation" deal with psychological rather than physical isolation. Another obvious problem with the experimental literature is that isolation and confinement are of relatively short durations.

Most investigators would agree that complete isolation, especially when prolonged, is to some degree stress-provoking for most individuals, and, further, that any particular stressor affects different individuals to varying degrees. Certainly work with infra-human organisms has demonstrated that social isolation

EDNA J. HUNTER, PH.D., is a clinical research psychologist, Assistant Director for Administration, Center for Prisoner of War Studies, Naval Research Center, San Diego, Calif.

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during early stages of life can have severe adverse effects. One of the recently released prisoners from Southeast Asia commented that he felt "periods of isolation had a definite effect on personality traits," and that while in isolation he could see these changes and realized he had to do something about them.¹⁵ For the human organism, there is considerable evidence that "isolation for an extended period leads to effects which would normally be considered pathological symptoms; hallucinations, delusions, the development of obsessive rituals, periods of severe anxiety, feelings of unreality, and the like."¹⁷

Although individuals may vary in their ability to adjust to differing degrees of stress, Hocking⁷ has contended that "subjection to prolonged, extreme stress results in the development of 'neurotic' symptoms in virtually every person exposed to it." In a study by one of the American prisoners of war recently released from North Vietnam,¹⁸ an attempt was made to measure the relative amount of stress produced by the various stress situations which the returnees encountered during their captivity. Data for that study were derived from the responses of the investigator's fellow prisoners of war (POWs) who were asked to rank-order the various captivity stresses as to the degree that each was perceived as stress-provoking. Social isolation ranked as the third most important stress of captivity, exceeded only by the stresses produced by: (1) the event of the capture itself, and (2) physical torture during captivity.

Although there seem to be numerous similarities between the treatment of the American POWs in Southeast Asia and the treatment of the POWs of the Korean War and those involved in the *Pueblo* incident, the experience of this more recent group of POWs was, in a number of ways, highly unique. The four major aspects of the Vietnam POW experience which distinguished it from that encountered by other American prisoners of past wars were: (1) the longer duration of the captivity period, with the majority confined for more than five years (some men were captive in excess of eight years); (2) the more highly select population with respect to age, rank, educational level, and training (the majority were officers and flyers); (3) the greater psychological stresses used by the captor; and (4) the extended periods of social isolation for the majority of the POWs (for some up to as much as five years spent alone in a cell).

PURPOSE OF THE STUDY

The Navy and Marine prisoners of war who were returned to the United States from Southeast Asia early in 1973 had experienced varying periods of social isolation during captivity; these periods of solitary confinement ranged from less than one month to almost five years. Thus, these men presented a unique opportunity to examine the effects of prolonged social isolation. The present study was a preliminary pilot-type project designed to gain some general insights into psychiatric residuals of prolonged social isolation through looking only at the group extremes with respect to both time spent in captivity and time in solitary confinement. The major hypothesis set forth was that those prisoners of war who had been

subjected to prolonged periods of social isolation during captivity would present more abnormal psychiatric symptoms after release than those with limited solitary confinement.

Three factors should perhaps be noted, however, that might cause one to make a prediction that there would be only minimal abnormal psychiatric symptomatology at the time of repatriation: (1) the euphoria among the prisoners noted at the time of homecoming probably had a "masking effect," and even where problems were observed by the psychiatrist, he may have tended to write them off as merely situational; (2) these men were a highly select group as to age, intelligence, and training even before capture and even more select at release, because had they not been better than average in physical constitution and emotional stability they would never have survived; and (c) studies of prisoners of past wars indicate a belated onset of psychiatric symptomatology.

THE SAMPLE

There were 164 Navy and Marine returnees,* but because some men had experienced relatively brief captivity periods and because postrepatriation reports by the prisoners indicated that captor treatment improved substantially subsequent to 1969, only those men who had been held captive for at least five years were selected. The sample for this particular study was comprised of *all* Navy and Marine Corps returned prisoners of war who had spent sixty months or more as captives in Southeast Asia ($N = 100$).

METHOD

Each of the prisoners of war released from Southeast Asia in 1973 was given a thorough medical evaluation according to a carefully planned computer-analyzable schedule, *The Initial Medical Evaluation Form (IMEF)*.† Evaluations of the releasees were begun at Clark Air Force Base in the Philippine Islands and were completed during the weeks immediately subsequent to release at hospitals within the continental United States that were located near the men's homes.

Data for this study were derived primarily from two sections of the IMEF: (a) Form VI: The Psychiatric Questionnaire, and (b) Form VII: the Psychiatric Examination. Both sections were completed by the particular psychiatrist assigned to evaluate the mental status of the man at the time of return. The Psychiatric Examination was divided into three major subsections that consisted of (1) a mental status examination; (2) a narrative summary of the captivity his-

* In addition to the 164 Navy and Marine returnees, there were 77 Army, 325 Air Force, and 25 civilian POW's released in February and March 1973.

† The IMEF was drawn up through the coordinated efforts of all branches of the military service, in liaison with the medical staff of the Center for Prisoner of War Studies in San Diego, California.

tory of the man, personal and family history, and his current level of functioning; and (3) a subsection that included a problem list, treatment plans, diagnoses, and prognosis. The Psychiatric Questionnaire covered aspects of the captivity experience that could perhaps, in some way, contribute to a fuller understanding of the range and magnitude of the stresses of each man's individual captivity experience and the various mechanisms, such as denial, rationalization, intellectualization, etc., utilized by the man in order to cope with those stresses.

Dividing the total sample in half, it was found that fifty of the men had experienced social isolation lasting seven months or less, and this group was designated as the Lo Solo Group. The remaining fifty men who had been subjected to more than seven months' social isolation were in the Hi Solo Group. Using the 2×2 chi square test or the t test for independent means, comparisons were made between the two groups for all items contained in the Psychiatric Examination and Psychiatric Questionnaire.* The degree of social isolation, that is, the amount of time spent in solitary confinement, was based upon the psychiatrist's response to the question: "How much of the period of captivity was spent alone, by himself?" It should be noted that spending time "alone" did not necessarily mean that the man was totally isolated from other prisoners, as he was often still able to communicate through tap codes or other means, even though in a cell by himself. It has been shown by other investigators¹⁸ that there is a high correlation between stress and condition of communications while in solitary. Therefore, it is unfortunate that information on the actual amount of communication possible while in isolation for each man was not available from data sources used for this study.

RESULTS

Mean Captivity and Solo Time

On the average, the 100 Navy and Marine POWs in the total sample had experienced exceptionally long periods of captivity, with a mean captivity of 73.9 months for the total sample, 72.5 months for the Lo Solo Group, and 75.3 for the Hi Solo Group. During the captivity period, without exception, all men experienced some period of time alone, but the amount of time varied considerably from man to man. Mean duration of solo time (not necessarily endured in one increment) for the Lo Solo Group was 3.3 months, for the Hi Solo Group, 21.2 months.

Demographic Differences

No statistically significant between-group differences were found with respect to race, branch of service, or years of formal education. (Both groups showed an average of slightly more than fifteen years of formal schooling.) There were, how-

* Data analyses were carried out by Gary Lester of the Data Analysis Branch of the Center for POW Studies.

ever, statistically significant between-group differences for certain other demographic variables. The Hi Solo men were older and of higher rank at time of capture. Mean pay grade was 3.6 for Hi Solos and 2.7 for Lo Solos. Mean age at time of casualty for men with limited solo time was 28.9 years; for those with prolonged solo time, 31.9 years. As might be expected, along with higher mean age, a higher percentage of the Hi Solo Group was married (76.0 percent to 68.0 percent for the Lo Solo Group) and had more children. These findings would seem to corroborate returnees' reports that the older, higher-ranking men were often separated from the other prisoners.

Social Isolation Effects as Reflected in Psychiatric Ratings

Between-group comparisons were made on the basis of the presence or absence of an abnormal rating on items contained in the thirteen categories of the Psychiatric Examination. Many differences were found between the Hi Solo and Lo Solo Groups, but only those between-group differences which were statistically significant ($p \leq .05$) will be presented and discussed here. For all differences discussed, the direction was that the Hi Solo Group was found to have more abnormal ratings than the Lo Solo Group.

For example, those with prolonged solitary demonstrated significantly more guilt than those in the Lo Solo Group. The Hi Solo Group also received more frequent abnormal ratings on suggestibility and rate of speech. Moreover, the Hi Solo Group received significantly more abnormal ratings on overdeveloped superego, unrealistically high need for achievement, and the need for achievement not commensurate with the man's abilities (see Table 1).

Table 1. PSYCHIATRIC RATINGS: Between-Group Differences for Returned Navy and Marine POWs Who Experienced Prolonged Captivity and Solitary Confinement¹ and Those with Limited Social Isolation² during Captivity

Psychiatric Rating	Lo Solo Group (N = 50) %	Hi Solo Group (N = 50) %	χ^2 (df = 1)
Presence of guilt feelings	16.3	41.7	7.58†
Abnormal suggestibility	16.0	40.8	7.51†
Abnormal rate of speech	16.0	34.0	4.32*
Superego overdeveloped	10.0	34.7	8.73†
Unrealistically high need/achievement	2.0	17.0	4.83*
Need/achievement not commensurate with abilities	4.0	21.3	6.67†

¹ All Navy and Marine returnees who were captive 60 months or more and who spent more than seven months in solitary confinement.

² All Navy and Marine returnees who were captive 60 months or more and who spent seven months or less in solitary.

* $p < .05$

† $p < .01$

Age or Social Isolation Effects?

Since findings showed that the men in the Hi Solo Group were, on the average, older and of higher rank, we must question whether the statistically significant between-group differences with respect to postrepatriation psychiatric ratings are merely a function of age, rather than related to time spent in solitary confinement. Therefore, another comparison was made using only those returnees who were thirty years of age or older at the time of capture. Within the original sample of a hundred men who had been held captive for five years or longer, thirty-three men in the Hi Solo Group had attained that age at time of capture, and twenty-one men in the Lo Solo Group were that age or older. When between-group comparisons of these older subsamples were made for all postrepatriation psychiatric ratings, statistically significant differences were very much evident, indicating that perhaps social isolation, and not mere age alone, is at least, in part, related to the psychiatric differences noted at the time of release (see Table 2).

Table 2. PSYCHIATRIC RATINGS: Between-Group Differences for Older¹ Returned POWs Who Experienced Prolonged Solitary Confinement and Older Men with Limited Solo Time

Psychiatric Rating	Older Lo Solo Group (N = 21)	Older Hi Solo Group (N = 33)	χ^2 (df = 1)
	%	%	
Does not appear stated age	4.8	39.4	8.01†
Feelings of guilt	10.0	43.8	6.58*
Abnormal suggestibility	19.1	46.9	4.30*
Ambivalence	5.0	28.1	4.24*
Overdeveloped superego	14.3	40.6	4.20*
Unrealistically high need for achievement level	0.0	19.4	4.60*
Apprehensive during psychiatric interview	81.0	54.6	3.92*

¹ All Navy and Marine Returnees who were held captive in excess of 60 months and who were 30 years of age or older at time of capture (N = 54).

* $p < .05$

† $p < .01$

In comparing the older Hi Solo Group (N = 33) with the older Lo Solo Group (N = 21), with only one exception, the Hi Solo Group received more frequent abnormal psychiatric ratings. Again, the men who experienced prolonged solitary confinements were rated as having higher levels of guilt and more frequent ratings of abnormal suggestibility (usually significantly less suggestible than the Lo Solos) and unrealistically high need for achievement. In addition, the Hi Solo Group showed significantly more ambivalence and were more often judged as

not appearing their stated ages, usually in the direction of appearing older than actual chronological age.

The one area where the older Lo Solo Group received more abnormal ratings than those men who experienced prolonged solitary confinement was in appearing overly apprehensive during the psychiatric interview.

Severity of Treatment by the Captor

We still must ask one further question: Can these differences be accounted for wholly by time spent in social isolation, or were there also between-group differences with respect to the severity of treatment by the captor which could perhaps account for the abnormal psychiatric ratings at time of release? Were the men who experienced excessive solo time also the ones who received the harshest treatment during captivity? In an attempt to answer that question, the older Hi Solo ($N = 33$) and Lo Solo Groups ($N = 21$) were compared on all aspects of their treatment by their captor; and statistically significant between-group differences were found for three items (see Table 3). The men who were

Table 3. SEVERITY OF TREATMENT BY CAPTOR: Between-Group Differences for Older¹ Returned POWs Who Experienced Prolonged Solitary Confinement² and Older Men with Limited Solo Time³

Captor Treatment as Indicated on Psychiatric Questionnaire	Older Lo Solo Group ($N = 21$) %	Older Hi Solo Group ($N = 33$) %	χ^2 ($df = 1$)
Use of torture devices or procedures (such as "the ropes," etc.)	28.6	60.6	5.28*
Lack of adequate shelter or clothing	47.6	75.0	4.13*
Withdrawal or diminishing food or water	9.5	35.5	4.50*

¹ All Navy and Marine POWs who were held captive in excess of 60 months and who were 30 years of age or older at the time of capture ($N = 54$).

² Solitary confinement in excess of seven months.

³ Solitary confinement for seven months or less.

* $p < .05$.

subjected to the longest periods of social isolation were also the ones who appeared to have received the harshest treatment from the captor. Seventy-five percent of the Hi Solo Group reported lack of adequate shelter or clothing as compared to 47.6 percent of the Lo Solo Group. Withdrawal or diminishing the ration of food or water as a means of punishment or coercion was also reported more frequently by the men who experienced prolonged periods of solitary. Additionally, actual physical punishment in the form of torture devices or procedures such as "the ropes" were used on the Hi Solo group more often than on the Lo Solo Group.

DISCUSSION

The major hypothesis that these prisoners of war who had experienced prolonged periods of social isolation during captivity would present more abnormal psychiatric symptoms after release than those with limited solitary confinement appears to be confirmed by the findings of this study. Between-group comparisons of the Hi Solo and Lo Solo Groups showed the Hi Solo Group members receiving significantly more abnormal ratings for presence of feelings of guilt and ambivalence. This group was also more apt to have other than average ratings on suggestibility, superego development, and need for achievement. Physiologically, the men who spent extensive periods in solitary tended to appear older than actual chronological age. However, it was the older man who experienced limited solo time who appeared more apprehensive during the psychiatric interview. What do these differences really indicate?

We have already mentioned the more severe treatment that appeared concomitant with high solitary time, which points up again the difficulty mentioned by Beebe³ of making inferences about the etiologic role of specific components of the captivity experience.

Lazarus⁸ mentioned four factors within the psychological structure that influence one's coping with stress: (1) patterns of motivation, (2) ego resources, (3) defensive dispositions, and (4) general beliefs about the environment and one's resources. He further pointed out that "stress cannot be defined exclusively by situations because the capacity of any situation to produce stress reactions depends on characteristics of the individual."

Reactions of the prisoner of war run the entire gamut of human coping mechanisms. Ford and Spaulding⁶ enumerated the wide variety of ego-defense mechanisms used in coping, such as faith, reality testing, denial, rationalization, and humor, and pointed out that those prisoners who handled stress poorly were those who appeared to be passive-dependent personality types and were more limited in the number of ego-defense mechanisms utilized. Suedfeld¹⁷ has stated that "the optimal adjustment to isolation and to sensory deprivation is apparently made by those subjects who are able to relax and enjoy the flow of fantasy," and that "the less information is available, the more the individual attends to and elaborates residual stimuli, whether internal or external."

As one former POW put it: "Beyond their bodies, they kept their minds occupied by similar mental gymnastics. They built houses, roads, and bridges; they drilled oil wells; they dreamed and fantasized; they thought of families and classmates and friends; they did physics and math problems to several decimal places in their heads; they calculated money saved; and they looked inward at self."¹⁴

Prisoners often spend hours on end contemplating what they have done with their lives and what they intend to do with them if they are lucky enough to survive their imprisonment. This type of contemplation often results in very

positive philosophical changes in a man's attitude, value system, and philosophy of life.¹⁰

A physician who survived his Southeast Asian captivity experience expressed the belief that in order to survive, *mental* strength was infinitely more important than physical strength, and found that accepting isolation year after year required ultimate mental discipline. The lesson he learned was that one can rise above the isolation environment; that "man" is an adaptive animal . . . and though he is a product of his environment, and may be subjugated and destroyed by a strange one, he must constantly attempt to work within it, to mold it, and to rise above it. *It is the key to survival.*"⁸

In attempting to interpret the findings of this study, we are forced to pose the question as to whether *personality factors* were at least partially responsible for particular individuals' being subjected to extended periods of solitary, as well as asking whether prolonged social isolation resulted in the types of between-group differences which were found. It may be that these differences existed between these particular men even *prior* to captivity. The more rigid men with overdeveloped superegos and unrealistically high need for achievement might be less pliant and more resistive in their interactions with the captor, and thereby more apt to antagonize the captor into subjecting them to harsher treatment, including longer periods of solitary confinement. Rutledge¹⁴ pointed out that "often (but not always) POW conduct in the face of captor demands was directly responsible for his solitary confinement."

Note further that it was the men with only limited amounts of solitary confinement who appeared more apprehensive at the time of release. Apprehensiveness as a typical response mode could perhaps also explain those individuals' shorter periods of social isolation.

CONCLUSION

Although a number of statistically significant between-group differences on post-repatriation psychiatric ratings were found for prisoners of war who experienced prolonged social isolation and those who experienced limited solitary confinements during captivity, no definitive statement can be made on the basis of these data as to the specific effects of social isolation *per se*.


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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Compared with the American prisoner of war (POW) experience in past wars, one of the unique aspects of the recent Southeast Asian POW experience was the longer duration of the captivity (up to almost nine years for some men), coupled with extended periods of solitary confinement. Social isolation pro- duces stress; and, although persistence of the effects of stress in short-term experimental isolation may last only a matter of hours or days, it has been suggested that prolonged extreme stress may have permanent effects. The POWs		

who were returned to the United States from Southeast Asia early in 1973 had experienced varying periods of social isolation which lasted from less than one month to almost five years. Thus, their situation presented a unique opportunity to study the psychiatric residuals of social isolation, one specific component of the POW experience. The 100 POWs in this study were the total population of Navy and Marine Corps returnees who had been held captive in Southeast Asia for at least five years or longer. The purpose of ^{This} the study was to examine the relationship between the returnees' degree of social isolation during captivity and their mental status at the time of repatriation. Comparisons were made between the group of 50 men who had experienced social isolation lasting seven months or less (the LO SOLO Group) and the group of 50 Navy and Marine returnees who had been subjected to more than seven months' social isolation (the HI SOLO Group), using the psychiatrists' ratings for each man on his initial medical evaluation. A number of statistically significant between-group differences with respect to abnormal psychiatric ratings were found and are discussed.



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